

**ABSTRACT**

A replaceable gas nozzle is insertable in a gas distributor ring of a substrate processing chamber and that can be shielded within the chamber. The replaceable gas nozzle has a longitudinal ceramic body having a channel to direct the flow of the gas into the chamber. The ceramic body includes a first external thread to mate with the gas distributor ring, and a second external thread to receive a heat shield. The channel has an inlet to receive the gas from the gas distributor ring and a pinhole outlet to release the gas into the chamber. A heat shield can be used to shield the nozzle extending into the chamber. The heat shield has a hollow member configured to be coupled with the nozzle that has an internal dimension sufficiently large to be disposed around at least a portion of the nozzle. The hollow member also has an extension which projects distally of the outlet of the nozzle and a heat shield opening for the process gas to flow therethrough from the nozzle outlet.